



OFFICE OF THE NATIONAL COMMANDER
NATIONAL HEADQUARTERS
CIVIL AIR PATROL
MAXWELL AIR FORCE BASE, ALABAMA 36112-6332

3 August 2006

MEMORANDUM FOR ALL NATIONAL BOARD MEMBERS

FROM: HQ CAP/CC

SUBJECT: Project 25 (P25) Digital Land Mobile Radio Interim Policy

1. For the past several years Civil Air Patrol has, in accordance with DoD policy, been purchasing P25 Digital Audio capable base, airborne, mobile and portable stations. When the approximately 450 new repeaters are distributed to the field in anticipation of the 2007 transition to narrowband, they will be fully P25 capable. Though not required now, it is becoming apparent that the future of voice radio communications will be digital.

2. Today, a significant portion of CAP's inventory of VHF-FM radio equipment and the majority of the member-owned equipment will consist of non-digital radios. We must establish policies so that this equipment does not become obsolete before its time. This interim policy letter is intended to encourage experimentation and use of P25 digital modulation while ensuring that members who do not have P25-equipped radios available to them are still allowed to support these missions to the maximum extent possible. We anticipate that as more P25 equipment becomes available in the program, this interim policy will be substantially updated.

3. The policy is as follows:

a. UTILIZATION: All Mission Communications nets or activities that do not involve a specific and identified complement of P25-equipped stations should continue to be conducted using analog modulation. While specific, controlled portions of these missions may be operated using digital modulation, care must be taken to ensure that no asset, unit or member is intentionally excluded from the ability to support these missions simply because they are not equipped with P25 radio equipment and assets.

b. REPORTING: Units are encouraged to experiment and test their P25 capability, and these units are also encouraged to report their findings and impressions to the National Technology Center (NTC) and other communications program managers.

c. COMPATIBILITY: Care must be taken to ensure that these tests do not interfere with concurrent analog operations and activities. Conversely, users of analog-only equipment must similarly take appropriate steps to protect legitimate and authorized use of P25 from interference. All P25-capable radios will, to the maximum extent possible, be programmed as "Mixed-Mode" receive on both their analog and digital CAP channels. All CAP radio operators are required to "listen before transmit." Analog-only

users should familiarize themselves with the sound of digital modulation in order to facilitate this process.

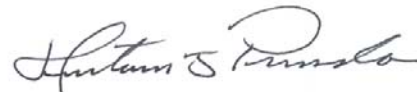
d. STANDARDS: All digital audio operation will only use P25 Common Air Interface (CAI) modulation.

e. COORDINATION: DC's who authorize ongoing digital operations using repeaters will inform both their Region DC and also the DC's of any neighboring Wings who might be affected. If these operations change significantly, or if specific steps are necessary to preclude interference to analog operations, this should also be reported.

f. ACCESS: All P25 Network Access Codes (NAC) will be in conformance with the attached Continuous Tone Coded Squelch System (CTCSS) to NAC conversion table, using the CTCSS tones currently authorized for the channel.

g. CRYPTO/SCRAMBLING: Encrypted P25 transmissions of any kind are permitted ONLY if advance authorization is granted in writing by the NTC. Only approved Keying Material provided by the NTC will be used. Use of locally constructed encryption keys is prohibited. Only approved encryption algorithms may be utilized.

4. While this matter is highly technical and not easily understood by many of us in command, the issue is of high importance and will be readily "decoded" by your communications staff. I appreciate your attention to this. Please pass this policy to your respective communications staff with your, and my, support for their valuable efforts on our behalf.



ANTONIO J. PINEDA
Major General, CAP
National Commander

Attachment:
CTCSS to NAC Conversion Table

cc:
CAP/EX/XP/FM/EXI/MD/DO/LG/NTC
Wing Administrators
CAP-USAF/CC/CV/XO/IG
CAP-USAF LR's
State Directors

Attachment 1

Shown below is the conversion table from CTCSS to NAC codes. These codes were determined by taking the CTCSS frequency and multiplying it by ten, then converting the integer result to a hexadecimal number.

<u>CTCSS</u>	<u>NAC Code</u>	<u>CTCSS</u>	<u>NAC Code</u>
67.0 Hz	\$29E	136.5 Hz	\$555
69.3 Hz	\$2B5	141.3 Hz	\$585
71.9 Hz	\$2CF	146.2 Hz	\$5B6
74.4 Hz	\$2E8	151.4 Hz	\$5EA
77.0 Hz	\$302	156.7 Hz	\$61F
79.7 Hz	\$31D	162.2 Hz	\$656
82.5 Hz	\$339	167.9 Hz	\$68F
85.4 Hz	\$356	173.8 Hz	\$6CA
88.5 Hz	\$375	179.9 Hz	\$707
91.5 Hz	\$393	186.2 Hz	\$746
94.8 Hz	\$3B4	192.8 Hz	\$788
97.4 Hz	\$3CE	203.5 Hz	\$7F3
100.0 Hz	\$3E8	206.5 Hz	\$811
103.5 Hz	\$40B	210.7 Hz	\$83B
107.2 Hz	\$430	218.1 Hz	\$885
110.9 Hz	\$455	225.7 Hz	\$8D1
114.8 Hz	\$47C	229.1 Hz	\$8F3
118.8 Hz	\$4A4	233.6 Hz	\$920
123.0 Hz	\$4CE	241.8 Hz	\$972
127.3 Hz	\$4F9	250.3 Hz	\$9C7
131.8 Hz	\$526		